



HM Treasury

Impact on households:  
**distributional analysis to  
accompany Autumn  
Statement 2023**

---

November 2023



Impact on households:  
**distributional analysis to  
accompany Autumn  
Statement 2023**

---



© Crown copyright 2023

This publication is licensed under the terms of the Open Government Licence v3.0 except where otherwise stated. To view this licence, visit [nationalarchives.gov.uk/doc/open-government-licence/version/3](https://nationalarchives.gov.uk/doc/open-government-licence/version/3).

Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

This publication is available at: [www.gov.uk/official-documents](https://www.gov.uk/official-documents).

Any enquiries regarding this publication should be sent to us at [public.enquiries@hmtreasury.gov.uk](mailto:public.enquiries@hmtreasury.gov.uk)

ISBN: 978-1-916693-58-6

PU: 3371

# Contents

<b>Chapter 1</b>	<b>Distributional analysis of tax, welfare and public service spending decisions</b>	<b>6</b>
<b>Chapter 2</b>	<b>Data sources and methodology</b>	<b>13</b>

# Chapter 1

## **Distributional analysis of tax, welfare and public service spending decisions**

1.1 This document sets out estimates of the impact of tax, welfare and public service spending decisions on household incomes, across the household income distribution. It contains the following charts:

- Figures 1.A and 1.B illustrate the cumulative impact of decisions announced from Autumn Statement 2022 onwards, in both 2023-24 and 2024-25
- Figure 1.C illustrates the cumulative impact of decisions (including departmental spending settlements) announced from Spending Round 2019 onwards
- Figure 1.D provides additional analysis showing the impact of those government policies specifically aimed at helping households with cost of living pressures in 2023-24
- To provide context beyond the impact of recent government policy decisions, Figure 1.E shows how the overall level of welfare and public service spending received, and tax paid, is distributed across households.

1.2 The analysis contained in this document generally only considers measures with a direct impact on benefit income, tax paid or the benefits-in-kind received through public services by UK residents. The analysis excludes the impact of business taxes, changes to regulation (including the National Living Wage), the impact of government borrowing, and the impact of measures on non-UK residents (a range of other exclusions are set out in more detail in Chapter 2).

1.3 However, those policy decisions can still have a significant impact on household incomes. Chart 3.1 in Chapter 3 of the main Autumn Statement document shows, for example, that a full-time National Living Wage worker's take home pay will be 30% greater in real terms in 2024-25 than it was in 2010-11, due to increases in the National Living Wage and changes in personal tax rates and thresholds since then. The analysis also does not capture the impact of supply-side growth policies

that may indirectly impact households, for example through increases in employment or higher wages.

1.4 Figures 1.A to 1.E in this document include the impact of the following Autumn Statement 2023 announcements; a list of the modelled measures from previous fiscal events can be found in the corresponding “Impact on Households” document for each event:

- National Insurance contributions (NICs): 2p cut to the main rate of Class 1 employee NICs from January 2024
- National Insurance contributions (NICs): 1p cut to the main rate of Class 4 self-employed NICs from April 2024
- National Insurance contributions (NICs): abolish Class 2 self-employed NICs liability from April 2024
- Local Housing Allowance (LHA): set to the 30th percentile from April 2024
- Universal Credit: extend the £2,500 surplus earnings threshold for one year from April 2024
- Universal Credit: increase the maximum level of the Minimum Income Floor for lead carers from January 2024
- Alcohol duty: freeze rates until 1 August 2024
- Tobacco duty: increase duty on Hand Rolling Tobacco by RPI+12% from 6pm on 22 November 2023
- Individual Savings Accounts: maintain subscription limits at current levels for 2024-25 for Adult, Junior, Lifetime ISAs and Child Trust Fund
- VAT: extend the zero rate on Women's Sanitary Products to include period underwear from January 2024
- Universal Credit: Severe Disability Premium transitional protection
- Immigration Health Surcharge: increase in fees (announced July 2023)
- Visa applications: increase in fees (announced July 2023)
- Restart: expand eligibility and extend the scheme for two years
- Mandatory Work Placements: phased rollout
- Talking Therapies: expand access and increase provision
- Individual Placement and Support (IPS): expand access
- NHS: funding for Agenda for Change pay awards (consolidated and non-consolidated) and winter planning
- Other previously announced increases to departmental spending

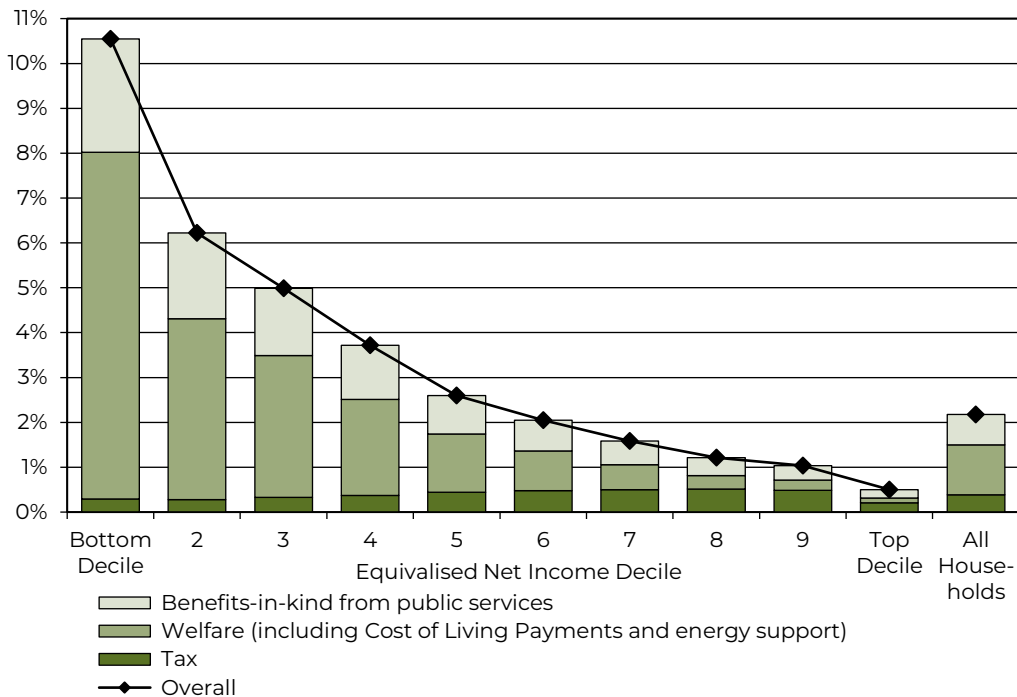
- Initial down payment for Advanced British Standard in 24/25
- Bus funding in 23/24 and 24/25 as announced in October 2023 as part of Network North

## Analysis of decisions announced from Autumn Statement 2022 onwards

1.5 Figures 1.A and 1.B set out the cumulative impact of decisions announced from Autumn Statement 2022 onwards across the household income distribution, including those Autumn Statement 2023 measures set out in paragraph 1.4. Figure 1.A shows the impact of these decisions in 2023-24, when households benefitted from a number of policies aimed at helping with cost of living pressures, while Figure 1.B shows impacts in 2024-25. The charts show the average impact on households compared to a hypothetical world in which the modelled policies were not introduced. Both charts show impacts as a percentage of net household income.

1.6 This analysis shows that, on average, households at the bottom end of the income distribution are benefitting the most as a percentage of income in both years as a result of government policies announced from Autumn Statement 2022 onwards.

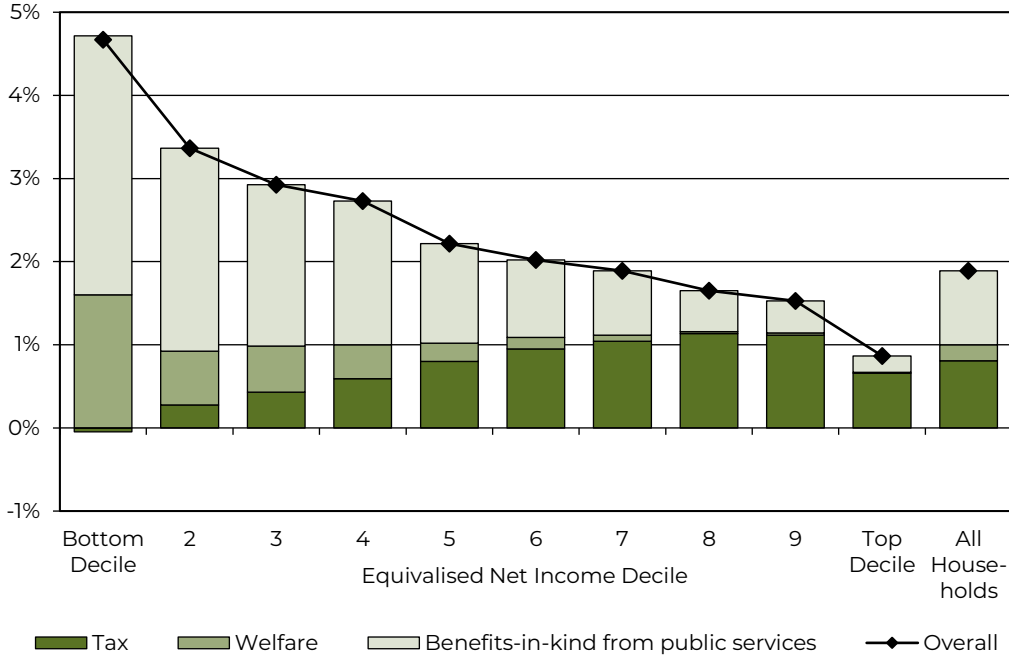
**Figure 1.A Impact of decisions announced from Autumn Statement 2022 onwards on households in 2023-24, as a percentage of net income, by income decile**



Source: HM Treasury distributional analysis model



**Figure 1.B Impact of decisions announced from Autumn Statement 2022 onwards on households in 2024-25, as a percentage of net income, by income decile**



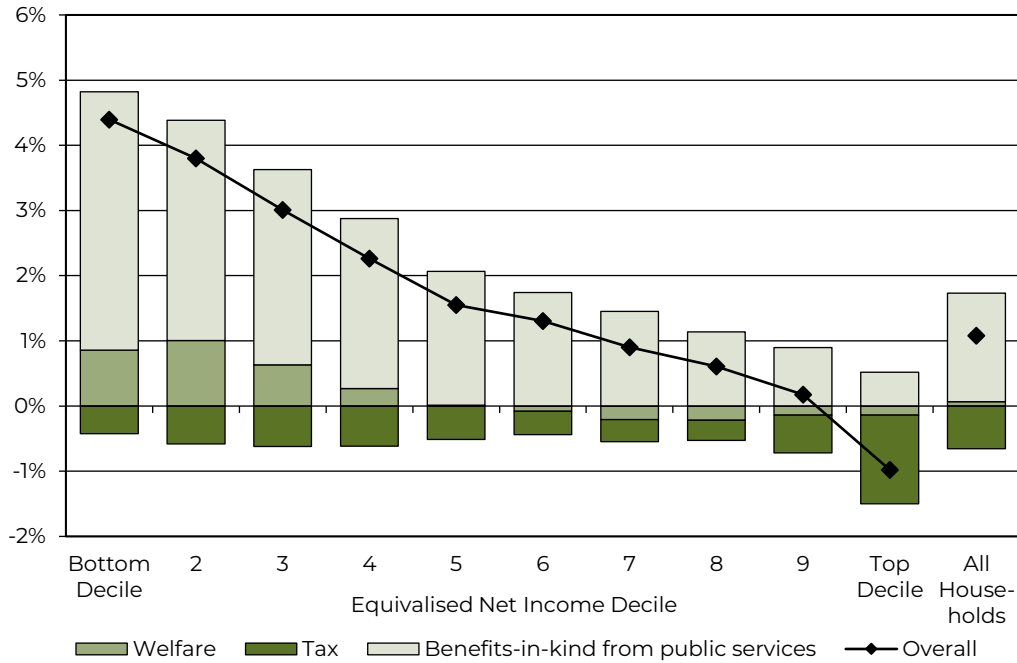
Source: HM Treasury distributional analysis model

## Analysis of decisions announced from Spending Round 2019 onwards

1.7 Figure 1.C sets out the cumulative impact in 2024-25 of all tax, welfare and public service spending decisions announced from Spending Round 2019 onwards across the household income distribution, including Spending Review 2021 spending settlements and those Autumn Statement 2023 measures set out in paragraph 1.4. The chart shows the impact on households in 2024-25 (the last year of the current Spending Review period) compared to a hypothetical world in which modelled government policies were not introduced.

1.8 This analysis shows that these policy decisions have been progressive across the income distribution and, on average, households in the lowest income deciles will benefit the most in 2024-25 as a percentage of net income.

**Figure 1.C Impact of decisions announced from Spending Round 2019 onwards on households in 2024-25, as a percentage of net income, by income decile**

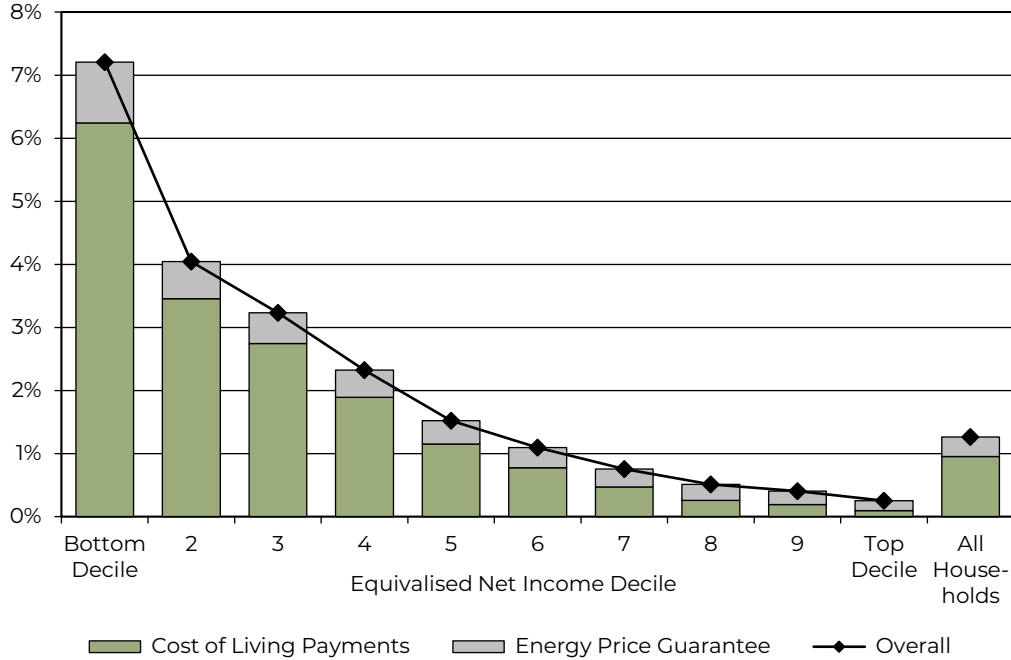


Source: HM Treasury distributional analysis model

## Support to households in 2023-24 from the Energy Price Guarantee and Cost of Living Payments

1.9 Figure 1.D shows the impact on households of government policies specifically aimed at helping households with cost of living pressures in 2023-24. It shows that, as a percentage of net income, the Energy Price Guarantee and Cost of Living payments provide greater support to those households at the bottom end of the distribution than at the top.

**Figure 1.D Impact of the Energy Price Guarantee and Cost of Living Payments on households in 2023-24, as a percentage of net income, by income decile**



Source: HM Treasury distributional analysis model

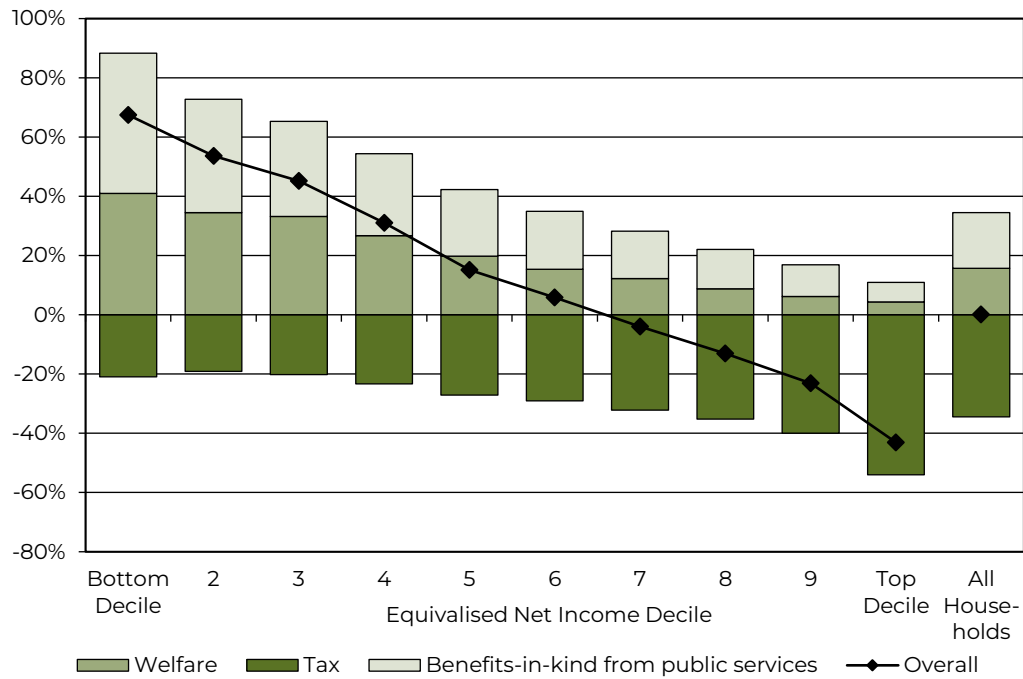
## Overall level of tax, welfare and public service spending

1.10 To provide context beyond the impact of recent government policy decisions set out in Figures 1.A-1D, Figure 1.E shows the estimated overall level of welfare and public service spending received, and tax paid, by households across the income distribution. The chart shows that government policy continues to be highly redistributive, and that in 2024-25 we estimate that:

- on average, the bottom and middle of the income distribution – 60% of all households – will receive more in public spending than they contribute in tax<sup>1</sup>
- on average, households in the lowest income decile will receive over four times as much in public spending than they pay in tax.

<sup>1</sup> Households will usually move between income deciles over time, and may therefore make net contributions in some years while being net beneficiaries in other years.

**Figure 1.E Overall level of public spending received, and tax paid, as a percentage of net income (including households' benefits-in-kind from public services), by income decile, in 2024-25**



Source: HM Treasury distributional analysis model

# Chapter 2

## Data sources and methodology

**Table 2.A Data sources for charts**

Figure	Source
1.A to 1.E	Internal HM Treasury modelling. See 2.1 to 2.29

**Table 2.B Data sources for statistics**

Paragraph	Statistic	Source
2.6	Income movements	DWP, Income Dynamics: Movements between quintiles: 2010 to 2021, March 2023
2.7	Expenditure distribution	Internal HM Treasury modelling

## Constructing Figures 1.A to 1.E

### Policies in scope

2.1 Figures 1.A and 1.B illustrate the cumulative impact of tax, welfare and public service spending decisions announced from Autumn Statement 2022 onwards (up to and including Autumn Statement 2023), in both 2023-24 and 2024-25. In addition to these impacts, Figure 1.C also includes the cumulative impact in 2024-25 of tax, welfare and public service spending decisions announced from Spending Round 2019 onwards. All charts show impacts relative to a counterfactual of no policy changes over the relevant period.

2.2 Figure 1.D shows the impact on households of the Energy Price Guarantee and Cost of Living Payments specifically aimed at helping households with cost of living pressures in 2023-24, across the household income distribution.

2.3 Figure 1.E shows estimates of the overall level of public spending received, and tax paid, by households in 2024-25 across the household income distribution. The chart accounts for those modelled measures announced at Autumn Statement 2023.

2.4 Throughout, measures are only included if they have a clear first order impact on the benefit income, tax paid, or the benefits-in-kind received through public services by UK residents. The following policy impacts are therefore out of the scope for this analysis:

- the impact of changes to regulation, for example the National Living Wage, which are not direct changes to the distribution of tax or public spending
- the behavioural impacts of measures
- impacts resulting from reduced fraud, error or debt in the welfare system, as full compliance with the rules of the welfare system is assumed throughout the modelling
- impacts resulting from reduced tax evasion, as full compliance with the rules of the tax system is assumed throughout the modelling. Anti-avoidance measures are captured where they result in a change in tax liabilities in the year being analysed
- impacts of decisions made by devolved administrations
- impacts of taxes where the incidence of the tax does not fall directly on households, for example employer National Insurance contributions. We exclude such taxes from this analysis as we are unable to determine the distributional consequences of how they are passed through to households
- the impact of measures without a direct impact in 2023-24 or 2024-25
- the impact of supply-side growth policies that may indirectly impact households, for example through increases in employment or higher wages.

2.5 Additionally, smaller tax and welfare measures are routinely excluded from this analysis where there is insufficient data to robustly model the distributional impacts.

## **Defining household living standards**

2.6 The analysis in this document uses household income as the measure of household living standards. While this is considered a standard approach, income may not always best represent some households' general standard of living, as some households may finance their expenditure by using wealth rather than income or experience periods of low income temporarily (for example households containing students, the temporarily unemployed, or the self-employed). The most recent analysis by the Department for Work and Pensions (DWP) has shown that, of those surveyed in 2020-21, 54% of those in the bottom quintile in 2015-16 were in a higher income quintile in 2020-21.<sup>2</sup>

2.7 An alternative approach to approximating household living standards is to use household expenditure. While there is a strong

---

<sup>2</sup> DWP, Income Dynamics: 2010 to 2021: Movements between quintiles, March 2023

correlation between income and expenditure, there are many households with both low income and high expenditure (and vice versa) – approximately 20% of households in the bottom income decile are in the top half of the expenditure distribution, for example. Due to a lack of data on expenditure in some of the datasets used in this analysis, an expenditure-based approach is not used here. However, the impact of government decisions on low-income households should be considered in the context of these methodological choices.

## Defining income and ranking households

2.8 This distributional analysis uses equivalised net household income, before housing costs, as the main indicator by which to rank households from lowest income to highest income. This indicator is comprised of several components:

- ‘Equivalised’: equivalisation is a process that adjusts a household’s net income to take into account the fact that larger households will require a higher net income to achieve the same standard of living as a household with fewer members. The equivalisation factors used in the analysis are the modified OECD factors (as also used in DWP’s Households Below Average Income publication)
- ‘Net’: household incomes are ranked after deductions from direct taxes, and after additions from welfare benefits. Deductions from indirect taxes, or additions through benefits-in-kind from public services, are not used to rank households
- ‘Household’: incomes are assessed in aggregate at the household, not individual level. Comparing household, rather than individual, incomes reduces the subjectivity of this analysis, ensuring that no assumptions are made about how incomes or expenditure are shared between separate individuals within the household
- ‘Before housing costs’: housing costs such as rent or the cost of servicing a mortgage are not deducted from household incomes.

2.9 The household income distribution is created by ranking households from the lowest equivalised net income to the highest equivalised net income, and then dividing this ranking into ten equally sized groups called deciles, across which the analysis is produced.

2.10 To provide an approximation of where different households might be found in the income distribution, Table 2.C below shows estimated median *gross* incomes (pre-tax private income including earnings, private pensions, savings and investments, plus benefit income) within each decile. This is a less precise estimate of a household’s position in the income distribution than *net* income, but is easier to understand because many people think about their incomes or salaries in gross rather than net terms.

2.11 For example, if a household consisting of two adults has a gross income of £27,800 per year between them, there is a high likelihood

that this household will be found in the third income decile. However, this is not guaranteed, as different gross household incomes can result in different net household incomes, depending on how many earners there are in the household, the size of the household, and for which benefits the household qualifies.

**Table 2.C Median gross income for each decile (£ per year, 2023-24) for different household compositions<sup>3</sup>**

<b>Median gross income of households in decile</b>	<b>1 adult</b>	<b>1 adult and 1 child</b>	<b>2 adults</b>	<b>2 adults and 1 child</b>	<b>2 adults and 2 children</b>
Top decile	78,700	-	117,600	160,800	202,500
Ninth decile	53,400	-	78,000	102,700	126,600
Eighth decile	42,400	-	62,400	82,900	103,400
Seventh decile	35,400	49,100	52,800	68,500	85,800
Sixth decile	30,600	43,300	45,200	59,600	71,300
Fifth decile	26,000	33,000	38,700	51,100	59,500
Fourth decile	21,800	29,200	32,900	43,000	51,600
Third decile	18,400	24,200	27,800	35,800	43,000
Second decile	15,200	20,300	23,100	29,100	35,000
Bottom decile	10,900	14,900	16,500	21,300	23,300

Source: HM Treasury distributional analysis model

## **Tax, welfare and public service spending methodology**

### **Tax and welfare**

2.12 Where possible, tax and welfare policy changes are analysed using HM Treasury's Intra-Governmental Tax and Benefit Microsimulation model (IGOTM), which is underpinned by data from the ONS's Living Costs and Food (LCF) survey. The sample size of the LCF means that in order to produce robust analysis three years of data have been pooled together, specifically 2016-17 to 2018-19. This data is then projected forward to reflect the financial year being modelled, using historical Annual Survey of Hours and Earnings data on earnings growth at different points across the income distribution as well as the latest Office for Budget Responsibility average earnings and inflation forecasts. The model makes no changes to the underlying

<sup>3</sup> Categories with insufficient underlying sample sizes have been left blank. Cost of Living Payments are also not included in the figures presented here.



demographics, employment levels or expenditure patterns in the base data.

2.13 Not all measures can be reliably modelled using IGOTM due to data and/or modelling constraints. Tax and welfare changes that cannot be modelled using microsimulation modelling are, where possible, apportioned to household equivalised net income deciles. This is done according to the Exchequer costs or savings from the measures, applied to analysis on where the impacts are likely to fall.

2.14 Within the tax system, the main taxes microsimulated in this analysis are: Income Tax, employee and self-employed National Insurance contributions, Council Tax, VAT, Insurance Premium Tax, Fuel Duty, Alcohol Duty, Tobacco Duty, Stamp Duty Land Tax, and Air Passenger Duty.

2.15 Within the welfare system, the most significant welfare benefits microsimulated in this analysis are: the State Pension, Pension Credit, Winter Fuel Payments, Attendance Allowance, Jobseeker's Allowance, Employment and Support Allowance, Housing Benefit, Universal Credit, Child Benefit, Disability Living Allowance, Personal Independence Payment and Tax-Free Childcare.

2.16 Not all households take up all the benefits to which they are entitled. HM Treasury's microsimulation modelling takes this into account when calculating the effects of policy changes by using information on the take-up of benefits in the underlying survey data. This methodology provides a more accurate estimate of the impact of welfare changes on households.

2.17 Modelling of tax and welfare measures in IGOTM takes into account the devolution of decisions in some areas from the UK government to devolved administrations. UK government decisions are modelled as applying only to households directly affected by the measure, while decisions taken by the devolved administrations are not included as policy impacts.

2.18 All charts in Chapter 1 assume for simplicity that Universal Credit has been fully rolled out and claimants are no longer claiming benefits under the older legacy system.

## **Public service spending**

2.19 The analysis of public service spending is aimed at quantifying the benefit frontline public services provide to households. This covers services provided by the Department of Health and Social Care, the Department for Education, the Department for Work and Pensions, the Department for Transport, the Ministry of Justice, the Department for Culture, Media and Sport, and some services delivered by local government in England.

2.20 The analysis excludes:

- administrative spending

- capital spending and the depreciation of capital assets
- spending policies where funding has not yet been allocated
- spending on public goods where it is not possible to identify the direct benefits from these areas of spending for specific households.

2.21 To align with the definition of income used in DWP's Households Below Average Income publication, the analysis of spending on public services also includes financial transactions through student loans. To account for this source of income, estimates of student loan outlay in a given financial year are counted as household income from public spending. Likewise, estimates of student loan repayments in that same financial year are reflected as a loss to households, again through the public spending bars.

2.22 For Figure 1.C, the analysis of public service spending compares forecast spending in 2024-25 to a counterfactual of actual spending in 2019-20, projected to 2024-25 in line with both the GDP deflator and population growth (to account for both price and population pressures on real per capita spend received). Therefore, the impacts presented in Figure 1.C reflect the impact on households of all in-scope public service spending measures from Spending Round 2019 onwards.

2.23 For Figures 1.A and 1.B, the analysis of public service spending compares a policy scenario including announced measures with a counterfactual where those policy announcements are not implemented. Because both the counterfactual and policy scenario are in the same fiscal year, it is not necessary to account for price or population pressures on spending in this analysis.

2.24 Charts are presented on a UK basis, though any public service spending that is the responsibility of the devolved administrations is not reflected in this analysis. This has two effects. First, any changes to devolved spending – whether positive or negative – have no impact on this analysis. Second, where change is expressed as a proportion of household income, the income denominators which underpin this calculation do not include any income from devolved spending.

2.25 The analysis of the benefits-in-kind provided by public service spending is, like with tax and welfare measures, derived from HM Treasury's IGOTM model. However the modelling approach taken for public services is slightly different.

2.26 Where the use of a public service is reported in the LCF, no additional data is required and the approach is similar to that used for most tax and welfare modelling. The spending on a particular public service is allocated between all those households who are expected to use this public service, in proportion to each household's expected use of the service.

2.27 Where information about the use of a service is not available in the LCF, additional data sources are required. This additional data is used to identify characteristics associated with the use of the service and then used to derive probabilities of service use conditional on these

characteristics. The cash value spent on public services is converted into an identical cash gain to households and distributed to households based on the probability that any given household uses the service.

## **Continuous improvements to modelling and analysis**

2.28 The modelling underpinning our analysis of tax, welfare and public service spending is under continuous improvement, to enable us to provide the best estimate (subject to time, resource, and data constraints) of how households are impacted by the cumulative tax, welfare and public service spending decisions made by the government. We also aim to capture the most comprehensive and up-to-date record of where government spending is directed to inform this analysis, noting this will continue to evolve as departments decide on final budget allocations. As such, the charts in Chapter 1 represent our best estimates of impacts at the time of publishing. However, whilst we expect these updates to refine our estimates slightly, we do not expect the distributional narrative to be substantively different.

2.29 Finally, the analysis shown in our charts is based on the latest available Office for Budget Responsibility forecast which is updated at every fiscal event. For these reasons, as well as those set out above, charts published at consecutive fiscal events are not directly comparable.

### **HM Treasury contacts**

This document can be downloaded from [www.gov.uk](http://www.gov.uk)

If you require this information in an alternative format or have general enquiries about HM Treasury and its work, contact:

Correspondence Team  
HM Treasury  
1 Horse Guards Road  
London  
SW1A 2HQ

Tel: 020 7270 5000

Email: [public.enquiries@hmtreasury.gov.uk](mailto:public.enquiries@hmtreasury.gov.uk)